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Product ID: 322568

Please see last page for supporting documentation for this product (certificates, CAD files & drawings, IES files, wiring diagrams, etc).



Image:

Larson Electronics LLC manufactures a wide variety of products, including custom built to spec designs. The pictures displayed for this unit are a general representation of form factor for the product line and may not accurately represent this exact configuration in every detail due to custom builds and changes between similar products in our standard catalog. The specifics for this configuration are listed in the specification table and supporting documentation (CAD files, Dimensional Drawing, Name Plate Diagram, Wiring Diagram, etc.). This means that specific details (receptacles, plugs, wires, connections, mounting brackets, external finishes, etc.) may not be accurately represented in images vs specifications. Please review specifications and do not order based solely on images.

MT-PSTC-R7-3P-DMA-12MVA-GMP-HT-LT-X6-BBFF-CS-2ZZ-M1 Conservator Substation Transformer

Transformer Type: Power Transformer Substation, Conservator Type
Transformer Configuration: Liquid Filled Pad Mounted
Transformer Feed Type: Radial Feed
Operation: Step-Down Operation (Not Approved for Step-Up)
Phase: Three Phase
Capacity (w/o Fans): 12 MVA (12,000 KVA)
Capacity (w/ Fans Stage-1): 16 MVA (16,000 KVA)
Capacity (w/ Fans Stage-2): 20 MVA (20,000 KVA)
Vector Group: Dyn1
Primary Voltage: 34500V
Primary Voltage Switch: N/A
Primary Voltage Class: 35 kV Class
Primary Phasor: Delta
Primary BIL: 200 KV
Secondary Voltage: 13800Y/7968
Secondary Voltage Class: 15 kV Class
Secondary Phasor: Grounded Wye
Secondary BIL: 110 KV
Tertiary Voltage: 4160V
Tertiary Phasor: Wye
Tertiary BIL: 75 kV
Frequency: 60 Hz
Temperature Rise: 65°C

Ratings

Meets/Exceeds DOE 2016 Efficiency Ratings
Meets/Exceeds CSA Efficiency Ratings
Complies with ANSI / IEEE C57.12.00
Complies with ANSI / IEEE C57 12.28
Complies with ANSI / IEEE C57 12.29
Complies with ANSI / IEEE C57 12.34
Complies with CSA C802.1
Complies with CSA C227.4
Complies with ANSI / IEEE C57 12.35
Complies with ANSI / IEEE C57.12.70
Complies with ANSI / IEEE C57.12.110
Complies with ANSI / IEEE C57.12.131
Complies with ANSI / IEEE C62.11
Complies with ANSI / IEEE C62.22
Complies with ANSI / IEEE 386
Complies with ANSI / IEEE C2
Complies with ANSI / IEEE C37.47
Complies with ANSI Z535.4
Complies with CSA C227.5
Complies with CSA C88
Complies with CSA C88.1
Complies with ASTM D3487
Complies with ASTM D6871

Insulation Rating: Class E Insulation - 120°C, 248°F
Cooling Class: KNAN/KNAF/KNAF; Self-Cooled/Fan-Cooled
Forced Air (Fans): Included, 2-Stages
Tap Changer: 33-position ON-Load Tap Changer
Tap Qty: (16) FCAN Above Taps, (16) FCBN Below Taps
Tap %: 0.625%
Tap Changer Switch Rating: 200-Amp, 35 kV, ON-Load Rated
Tap Changer Switch Location: High Voltage (HV) [Left Side]
Impedance: ≥ 7.0%
Primary Connection Type: Live Front
Primary Termination Arrangement: Top Mounted Terminals
Primary Termination: One-piece deadbreak apparatus bushings, IEEE 386. with a parking stand near each dead-front bushing
Primary Connection Qty: (3) Primary Connections
Primary Bushing Rating: 35 kV Class, 200 kV BIL, 600A
Primary Neutral Connection: N/A
Primary Surge Arrestors: Included, fully shielded, dead-front, metal-oxide-varistor, elbow type with resistance-graded gap, suitable for plugging onto 200 ampere bushing interface
Primary Surge Arrestor Voltage Rating: 27 kV
Primary Surge Arrestor MCOV Rating: 22 kV
Primary Overcurrent Protection (OCP): N/A
Primary Overcurrent Protection Method: N/A
Primary Overcurrent Protection Holder: N/A
Primary Current Transformer: Included, (1) per each bushing, 500:5 Ratio, C400 Accuracy Class
Primary Grounding Provisions: N/A
Secondary Connection Type: Live Front
Secondary Termination Arrangement: Top Mounted Terminals
Secondary Connections: Externally Clamped One-Piece Epoxy Bushings Copper Threaded Studs w/ NEMA Spade Terminals
Secondary Connection Qty: (4) Externally Clamped One-Piece Epoxy Bushings Copper Threaded Studs
Secondary Bushing Rating: 15 kV Class, 110 kV BIL, 3000A
Secondary Connection Supports: N/A
Secondary Over Current Protection (OCP): N/A
Secondary Neutral Bushing: Four Hole Spade Terminal (NEMA 2 hole pattern)
Secondary Neutral Bushing Rating: 5 kV Class, 60 kV BIL, 1600A
Secondary Grounding Provisions: (1) NEMA Ground Bar attached to tank via (2) Welded Ground Bungs
Metering Current Transformer (CT): N/A
Metering Panel: N/A
Auxiliary Control Panel: N/A
Power Supply: Included, Auxiliary Power 480 Vac, 3Ø, AC Voltage 120/208/240 Vac, 1/3Ø, DC control voltage 125 Vdc
Load Break Switch: N/A
Load Break Switch Qty: N/A
Load Break Switch Rating: N/A
Load Break Switch Location: N/A
Efficiency Standard(s): Meets ANSI/IEEE Standards
K-Factor Rating (Harmonic Mitigation): K-1 (Standard)
Pulse Drive Rating: N/A
Insulation Fluid: Biodegradable Vegetable Natural Ester Insulation Fluid, Non-PCB Fluid
Fluid (Oil) Capacity*: TBD
Fluid (Oil) Weight*: TBD
Oil Preservation System: Included With A Tank And All Necessary Accessories
Liquid Level Indicator: Magnetic liquid level indicator with High/Low Alarm Contacts
Temperature Indicator: Dial-type analog thermometer with Alarm Contacts
Pressure/Vacuum Indicator: Analog Dial Gauge

Complies with NEMA 260-1996
Complies with 10 CFR Part 431
Complies with CSA C2.1-06
Complies with CSA C50
Complies with CSA C802-3
Complies with CSA C88-16

Features

Penta-head Bolt Entry Assembly
High-Fire Point Insulating Fluid
Non-PCB Insulating Fluid
Tamper Proof Housing
Hinged Front Compartment Doors, Pad Lockable
NEMA 3R Wiring Compartment
Hot Stick Included, HV Door Mount

Efficiency %: 98.00%

Based on transformer operating at 50% of nameplate base kVA.

Load Losses Based on 85°C Reference Temp.

No Load Loss (in watts): 17800W

Full Load Loss (in watts) at 100%: 78800W

Total Load Loss (in watts) at 100%: 96600W

Total Losses at 55°C LL Temp. & 20°C NL Temp.
Total Load Loss (in watts) at 50%: TBD

Note: *Losses offered are typical only, not guaranteed*

Labeling:

Externally Stencilled (Painted) KVA Rating
Externally Stencilled (Painted) Voltage Rating
External Non-PCB Label
External Warning & Danger Label
External Barcode Label
Internal Busing & Accessory Labeling
Stainless Steel Riveted Nameplate

Factory Tests:

Winding Resistance Test
Insulation Resistance Test
Voltage Ratio Error Test
Short-circuit Impedance Test

Pressure Relief Device: Included, Automatic Action
Fault Indicator: Included, Buchholz Relay
Gas Sampler Valve: Included, Schrader Valve
Fill Valve: 1" NPT Port w/ Removable Bolt Plug
Fill Valve Location: Front Compartment
Drain Valve: 1" NPT Port w/ 5/8" NPT Sampler Valve & Filter connection
Drain Valve Location: Front Compartment
Sudden Pressure Relay: Included
Winding Material: Copper
Average 24 hr Ambient Temperature: 30°C
Ambient Operating Temperature Range: -40°C to +44°C

Sound Level: 67 dBA

Elevation (Altitude): 3300ft (1000 meters) Above Sea Level
Wind Speed Rating: 120 mph
Seismic Zone Rating: Zone 1
Snow/Ice Loading Capability: Yes
Core Material: Grain Oriented Steel
Tank Material: 304 Stainless Steel
Cabinet Material: 304 Stainless Steel
Base Platform Material: 304 Stainless Steel
Grounding Pads Material: 304 Stainless Steel
Nameplate Material: Stainless Steel
Portability: Lifting lugs, provisions for jacking under base, w/ base construction suitable for using rollers or skidding
Housing Type: Metal Casing Liquid Filled Transformer
Enclosure Rating: NEMA 3R Weatherproof Wiring Cabinet, 304 Stainless Steel, Sealed Tank
Seismic Rating: Yes
Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating
Finish Color: Light Grey (ANSI #61)
Mounting: Supporting Structures
Conduit Opening: N/A
Tank Cover Access Handhole: N/A
Dimensions*: TBD
Dry Weight (w/o Oil)*: TBD
Total Weight (Liquid Filled)*: TBD
*Please note that numbers are approximate and subject to change

No-load Loss (Wattage) Test
Load Loss (Wattage) Test
Induced Voltage Withstand Test
Separate Source Voltage Withstand Test
Pressure Integrity Test Test

Shipping:
Shipped on pallet on open flatbed
Palletized on Wooden Pallet w/ Skid Pockets
Pallet Skid Facing Outward Sides of Truck
Note: *Crated shipping in lieu of palletizing can be done upon request for an additional fee*

Special Orders - Special Requirements
Contact us for special requirements
Toll Free: 1-800-369-6671
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Fax: 1-903-765-7664
E-mail: sales@larsonelectronics.com

The MT-PSTC-R7-3P-DMA-12MVA-GMP-HT-LT-X6-BBFF-CS-2ZZ-M1 Conservator Substation Transformer from Larson Electronics offers powerful, reliable, and efficient power distribution in outdoor locations. The low operating costs, low heat emissions, and low cost of ownership make this transformer ideal for a wide range of applications and businesses. This transformer ensures extra space for storing oil and is equipped with breathers to facilitate air flow. The conservator transformer should be installed on supporting structures.

PLEASE NOTE: ANY FREE SHIPPING OFFERS DO NOT APPLY TO POWER DISTRIBUTION PANELS, TRANSFORMERS, OR SUBSTATIONS*

Transformer Features: The industrial transformer features a primary voltage of three-phase 34500V Delta and a secondary voltage of three-phase 13800Y/7968 Grounded Wye. This system is rated for 12 MVA (12,000 KVA) [natural cooled] / 16 MVA (16,000 KVA) [fan cooled stage-1] / 20 MVA (20,000 KVA) [fan cooled stage-2]. We offer systems with loop or radial feed, as well as dead front or live front primary connections. This transformer features a 33-position ON-Load tap changer with sixteen +0.625% taps above and sixteen -0.625% taps

below to allow small changes in voltage.

The system features copper windings for high strength and thermal/electrical conductivity. This transformer consists of a rectangular coil and a five-legged wound core design with three coils and four core loops (this is for three-phase transformers only; single-phase units have one coil and two core loops).

The MT-PSTC-R7-3P-DMA-12MVA-GMP-HT-LT-X6-BBFF-CS-2ZZ-M1 has fans for forced air cooling.

Temperature Rise: This unit features 65°C temperature rise for reduced heat waste, increased reliability and longer life. At 65°C temperature rise, the transformer 12 MVA (12,000 KVA) [natural cooled] / 16 MVA (16,000 KVA) [fan cooled stage-1] / 20 MVA (20,000 KVA) [fan cooled stage-2]. The transformer meets standard efficiency requirements. The combination of low temperature rise and high efficiency makes this unit suitable for use in electrical rooms, air conditioned spaces in buildings, underground vaults, and similar locations, in addition to outdoor areas.

Insulation Fluid: The MT-PSTC-R7-3P-DMA-12MVA-GMP-HT-LT-X6-BBFF-CS-2ZZ-M1 features biodegradable fluid (KNAN/KNAF/KNAF). We offer transformers with mineral oil or FR-3 fluids, if needed.

Biodegradable Fluid: Biodegradable cooling fluid (vegetable oil) has a higher heat capacity compared to mineral oil, making the liquid safer to use and more reliable during operations. Vegetable oil has a higher flash point and fire point than mineral oil, hydrocarbon oil, silicone oil and synthetic ester. This cooling fluid is also non-toxic and can tolerate higher breakdown voltages than mineral oil. When operating at high temperatures, biodegradable cooling liquid sustains up to 120% loan conditions, which helps preserve the transformer's lifespan and performance.

Gauges: The following gauges are included with the system: liquid level, temperature, fault indicator, and pressure/vacuum gauges. Standard liquid level, temperature, and pressure/vacuum gauges are analog, manual reading types.

Fault Pressure Devices: There is a Buchholz relay fault indicator on this unit.

Sudden Pressure Relay: There is a sudden pressure relay on the unit. This safety component is designed for protection when a rapid increase in tank pressure occurs. The relay is suitable for detecting sudden pressure fluctuations above predetermined safe limits.

Surge arresters: This system comes with surge arresters on the primary side.

Load Break Switch: The transformer is not equipped with a load break switch.

Valves: The MT-PSTC-R7-3P-DMA-12MVA-GMP-HT-LT-X6-BBFF-CS-2ZZ-M1 is equipped with a pressure relief valve, fill valve, and drain valve with sampler port.

Protection Fuses: This transformer does not have bayonet protection fuses on the primary side. For units without protection fuses, upstream protection is provided. We recommend provisions for protection fuses when possible, as blown fuses may require more frequent oil

changes.

Mount: This conservator substation should be installed on supporting structures, such as the roof of the transformer main tank.

Benefits: The MT-PSTC-R7-3P-DMA-12MVA-GMP-HT-LT-X6-BBFF-CS-2ZZ-M1 transformer offers many benefits to consumers. This transformer provides owners with significant energy savings, as well as offering environmental benefits. Higher efficiency not only extends the life of the transformer, but also turns into cost savings for owners in the form of lower energy bills and decreased cost of ownership.

Applications: General purposes, industrial sites, electrical rooms, underground vaults, manufacturing facilities, steel plants, offshore, commercial, military, processing plants, electric power distribution, utilities, and more.

Larson Electronics is a manufacturer and as such can build stationary and portable transformer systems to your specifications. Although we carry several models of power distribution transformer systems, we can deliver custom ordered units almost as quickly as our prebuilt units. If this model does not meet your needs, please contact us at 1-800-369-6671 or sales@larsonelectronics.com to discuss your specific requirements.

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Frequently Asked Questions (FAQ)

There are no Faqs

Product ID: 322568

Warranty: 24 Months.

Export Control Classification Number (ECCN): EAR99

Links (Click on the below items to view):

- **Operations Manual**(https://www.larsonelectronics.com//images/product/Manual/322568.PDF)
- **HigResPic1**(https://www.larsonelectronics.com//images/product/HigResPic1/322568.JPG)
- **Video1**(https://www.youtube.com/watch?v=4-JEyYeYcn8)
- **Video6**(https://www.youtube.com/watch?v=olihKUo24KU)
- **Video7**(https://www.youtube.com/watch?v=Yez7eCilgDE)
- **Video8**(https://www.youtube.com/watch?v=Ac5BDPSy964)
- **ISO 9001 Certification**(http://larsonelectronics.com/images/pdfdocs/ISO9001.PDF)
- **Business Certificate**(https://www.larsonelectronics.com/images/pdfdocs/w9.PDF)
- **Shipping Time Map**(https://www.larsonelectronics.com/images/product/ShippingTimeMap/ShippingTimeMap.pdf)